H. E. MARTINET.

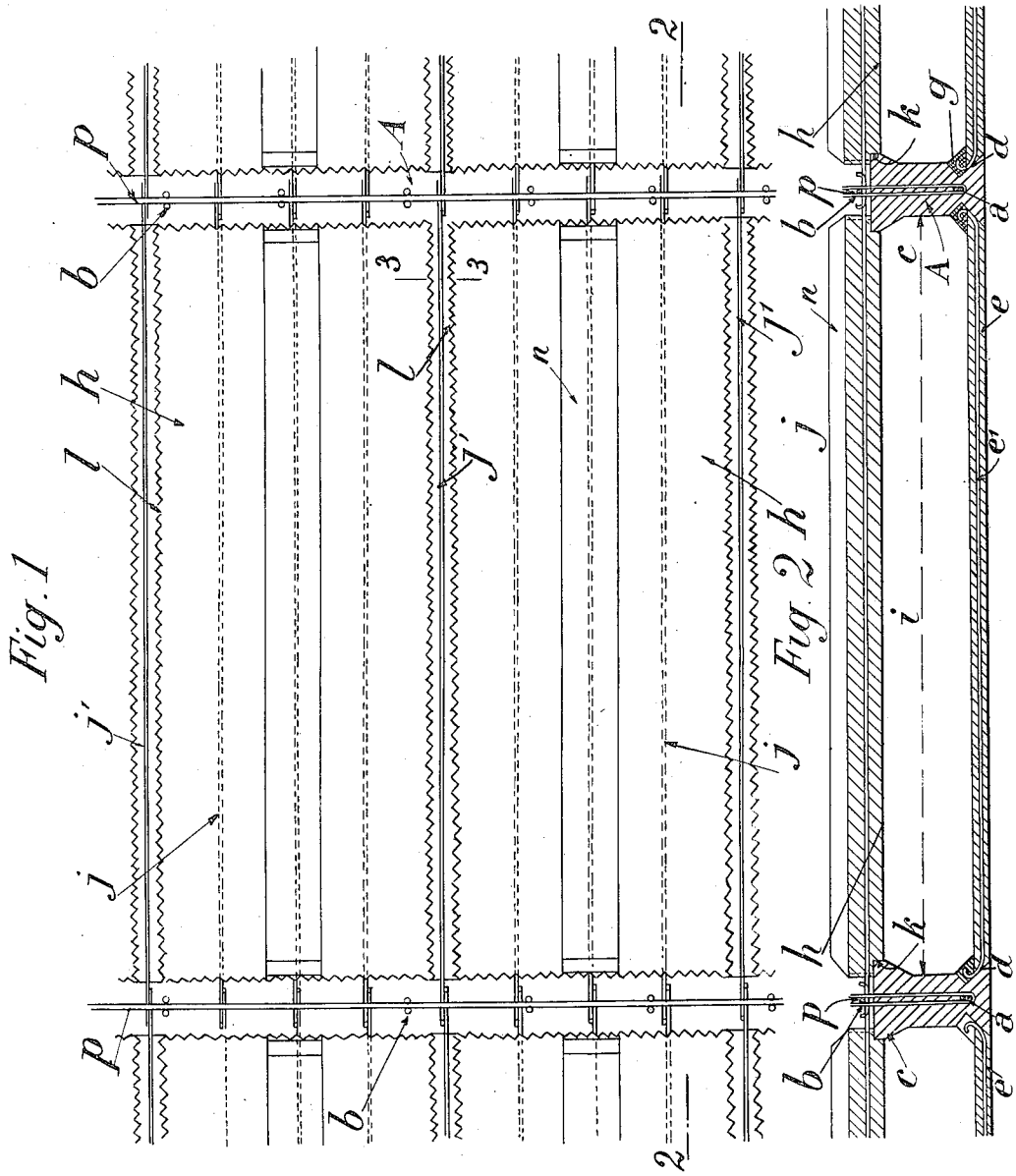
REINFORCED CONCRETE FLOOR.

APPLICATION FILED SEPT. 10, 1918.

1,285,298.

Patented Nov. 19, 1918.

2 SHEETS—SHEET 1.



Inventor

Henry Eugene Martinet

by

his Attorney

H. E. MARTINET.

REINFORCED CONCRETE FLOOR.

APPLICATION FILED SEPT. 10, 1918.

1,285,298.

Patented Nov. 19, 1918.

2 SHEETS—SHEET 2.

Fig. 3

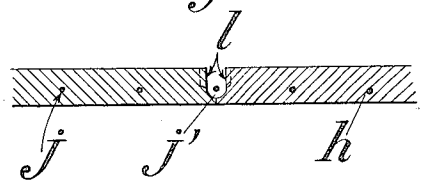
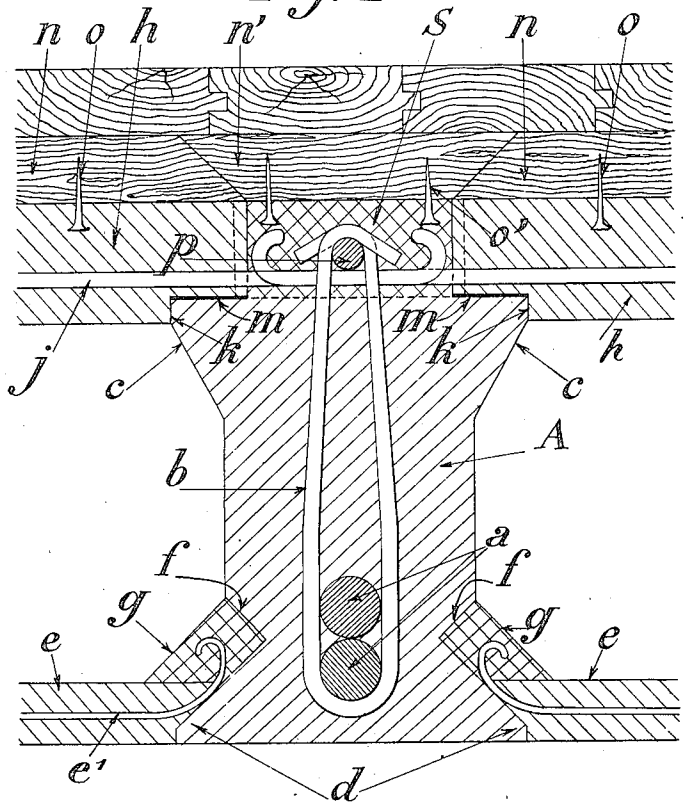


Fig. 4



Inventor

Henry Eugène Martinet

by Attorney

his Attorney

UNITED STATES PATENT OFFICE.

HENRY EUGÈNE MARTINET, OF PARIS, FRANCE.

REINFORCED-CONCRETE FLOOR.

1,285,298. Specification of Letters Patent. Patented Nov. 19, 1918.

Application filed September 10, 1918, Serial No. 253,488.

To all whom it may concern:

Be it known that I. HENRY EUGÈNE MARTINET, citizen of the Republic of France, residing at 129 Rue du Faubourg St. Honoré, Paris, in the Republic of France, have invented new and useful Improvements in Reinforced-Concrete Floors, of which the following is a specification.

This invention relates to floors made of reinforced concrete and comprising members which are cast in advance and braced together when in place by means of an additional filling of concrete. The invention makes it possible to very rapidly provide a finished flooring *i. e.* a flooring ready for the reception of the wooden floor or pavement on one side and the plastering for the ceiling on the other side, the improved construction of floor having further such cohesion that it may be compared to monolithic floors cast in place in one block. Moreover, the improved floor is so constructed that it may be built in a very practical and economical manner.

In the annexed drawing given by way of example:

Figure 1 is a partial plan view of a floor constructed in accordance with the present invention the floor being shown with the metal reinforcing and connecting members in place but previous to the pouring of the concrete filling which will surround said members.

Fig. 2 is a vertical cross section along the line 2—2 in Fig. 1.

Fig. 3 is a detail in section along the line 3—3 in Fig. 1, showing the joint between two adjacent slabs.

Fig. 4 is a vertical section, on a larger scale of the finished floor.

In the drawing, the parts covered with the usual parallel hatching lines denote the members cast in advance and the parts which are cross hatched denote the filling.

The beams A are each made of a block cast in advance. The reinforcing members of said beams comprise the usual tension rods *a* and the stirrups or shear members *b* which project upwardly through the upper face of the beams and are left opened as shown in Fig. 2.

The beams A are provided along their upper edges with ribs or shoulders *c* which give the beams a greater width at the point where the slabs *h* rest upon the same.

At the bottom, the beams have a rectangular cross section if they are to be left open and in the alternative, they are provided, as shown, with inclined wings or ribs *d* adapted to carry the slabs *e* of the ceiling, which latter may be made of any suitable material and be reinforced or not.

Above the ribs *d*, the beams are preferably provided with longitudinal slots *f* into which a filling *g* is poured after the slabs *e* have been put in place. The filling *g* acts as a wedge; it prevents the slabs from being lifted and gives greater cohesion to the whole lower part of the structure by permitting the slabs to act as struts between the beams and firmly securing said slabs on the lateral wings or ribs of the beams. The filling *g* may be of plaster, cement, mortar or concrete. The ceiling slabs *e* may be reinforced by metal members *e'* as shown and if the construction is to be a permanent one, the ends of the members *e'* may project outwardly so as to be embedded in the filling *g*, which is then made of cement, mortar or concrete. If the construction is only a temporary one and liable to be knocked down, no projecting member such as *e'* is provided and the filling *g* is preferably made of plaster. The slots *f* also facilitate the setting of the slabs into place, by slightly inclining the latter in one direction or the other.

The slabs *e* for the ceiling, when they are provided, have their bottom face flush with the lower face of the beams so that the plastering of the ceiling may be easily effected.

The beams A may of course be either solid or provided with apertures.

The slabs *h* which form the flooring proper are cast in advance and have a rectangular shape. Their length is approximately equal to the distance *i* between the bodies of two adjacent beams and the width of the same is preferably a multiple or a fraction of 18 in. which dimension is the usual distance from axis to axis between the joists *n* carrying the wooden floor. The dimensions of the slabs will also be determined so as to obtain the most economical span having also due regard to the weight and dimensions which the slabs and beams should have to be easily handled.

The slabs *h* are provided with longitudinal reinforcing bars *j* which project at both ends a suitable distance and are turned upwardly as shown. Along each of their lower edges which are parallel to the beams, the

slabs *h* are provided with a rabbet or slot *k* and along their upper edges at right angles with the beams, they are provided with a slot *l*. The lower slots *k* have for their purpose to permit the slabs to be positioned more easily. It may here be remarked that a thin sheet of mortar, may be spread over the upper face of the ribs *c* of the beams, as shown at *m*, before placing the slabs, in order to insure better cohesion of the whole. The upper slots *l* form, when two adjacent slabs are placed one near the other, a gutter which may be used for jointing the slabs together as hereafter described.

The four sides of the slabs *h* have their surface toothed or serrated as shown in Fig. 1 so as to insure a better grip of the concrete which is poured in place afterward.

If the concrete floor is to be covered by a wooden floor, the slabs *h* are provided with wood joists *n* which are anchored to the slabs before the concrete is set by means of nails *o*. The joists *n* have their ends beveled as shown. If the slabs *h* are 18 in. wide, one joist will be provided on each of the same.

The beams and slabs being in place, the floor is completed by placing into the gutters formed by the slots *l* reinforcing bars *j'* similar to the bars *j*. The compression bars *p* of the beams are then placed between the projecting ends of the stirrups *b*, the latter are bent over said compression bars and concrete is poured over the beams into the intervening space or gap between two opposite rows of slabs as shown at *s* and also into the gutters or slots formed between the adjacent slabs in the same row. Said concrete fillings are shown in crossed hatched lines as already explained.

The poured concrete is then suitably stamped and if the joists *n* are provided, wooden filling pieces *n'* are placed between the beveled ends of the opposite joists, said filling members being anchored to the freshly poured concrete by means of nails *o'*. If desired, the fillers *n'* can also be nailed to the joists. The floor is then leveled by a slight planing and the floor boards *q* are then placed and secured as usual. If the wooden floor is not desired a pavement is built by ordinary means.

In a slightly modified construction, the reinforcing bars *j* of the slabs *h* project a slight distance only from the ends of the latter and the central part of the concrete filling *s* is replaced by a solid upward extension of the beam body, in which the compression bar *p* and the bent ends of the stirrup *b* are embedded. The side faces of said solid extension are undercut and concrete is poured into the space between said inclined side face and the opposite end face of the slab *h*, the projecting end of the reinforcing bar *j* in said slab being embedded in said filling of concrete. The latter can thus act as a sort of wedge in holding the slabs *h* in place in a manner similar to that described in reference to the concrete fillings *g*.

It will thus be seen that the construction of a floor according to the invention is very simple and the building of the same does not require skilled labor. The above described construction has all the advantages of the concrete floors embodying elements cast in advance (eliminating coffering, rapidity in the construction, molding of the elements in series) while obviating the disadvantages of the same, the principal one of which is the lack of cohesion which involves the use of heavy elements having strong reinforcing members. In the above described floor, owing to the improved means used for firmly holding the different members assembled, the latter may be given dimensions equal to those they would have in monolithic floors cast on the spot. This is important not only in connection with the weight of the elements but also with reference to the height of the floor.

It may finally be added that in a floor constructed in accordance with the invention, the amount of fresh concrete poured in place is very small since it need only be sufficient to embed the parts of the reinforcing members which are used to effect the binding of the different elements together.

Having now described my invention what I claim as new and desire to secure by Letters Patent is:

1. A reinforced concrete floor comprising in combination reinforced concrete beams cast in advance and provided along their top edges with lateral ribs, reinforced slabs cast in advance and provided with shoulders adapted to rest upon the ribs of the beams, said slabs having reinforcing bars which project outwardly at the ends of the same and the opposite slabs leaving a gap between their ends, compression rods extending within the gap between the opposite slabs, stirrups partially embedded in the beams and having their projecting ends turned over said compression rods, the ends of the reinforcing bars in the slabs extending under said compression rods and being turned upwardly and a concrete filling poured into said gap over the compression rods and the turned ends of the stirrups and reinforcing bars.

2. A reinforced concrete floor comprising in combination reinforced concrete beams cast in advance and provided along their top edges with lateral ribs, reinforced slabs cast in advance and provided with shoulders adapted to rest upon the ribs of the beams, said slabs having reinforcing bars which project outwardly at the ends of the same and the opposite slabs leaving a gap between their ends, compression rods extending within the gap between the opposite slabs, stirrups partially embedded in the beams and having their projecting ends

turned over said compression rods, the ends of the reinforcing bars in the slabs extending under said compression rods and being turned upwardly, channels provided in the adjoining faces of adjacent slabs, reinforcing bars extending within said channels, the ends of said bars extending under the compression rods and being turned upwardly and a concrete filling poured in the said gap and channels.

3. A reinforced concrete floor comprising in combination reinforced concrete beams cast in advance and provided along their top edges with lateral ribs, reinforced slabs cast in advance and provided with shoulders adapted to rest upon the ribs of the beams, said slabs having reinforcing bars which project outwardly at the ends of the same and the opposite slabs leaving a gap between their ends, compression rods extending within the gap between the opposite slabs, stirrups partially embedded in the beams and having their projecting ends turned over said compression rods, the ends of the reinforcing bars in the slabs extending under said compression rods and being turned upwardly, a concrete filling poured in said gap, lateral ribs provided on the beams along their bottom edges, said ribs having an inclined upper face, recesses in said beams above the ribs, reinforced slabs cast in advance and having beveled edges adapted to bear upon the inclined face of the ribs, the reinforcing bars in said slabs projecting into said recesses and a concrete filling poured in said recesses and adapted to hold the slabs in position.

4. A reinforced concrete floor comprising in combination reinforced concrete beams cast in advance and provided along their top edges with lateral ribs, reinforced slabs cast in advance and provided with shoulders adapted to rest upon the ribs of the beams, said slabs having reinforcing bars which project outwardly at the ends of the same and the opposite slabs leaving a gap between their ends, compression rods extending within the gap between the opposite slabs, stirrups partially embedded in the beams and having their projecting ends turned over said compression rods, the ends of the reinforcing bars in the slabs extending under said compression rods and being turned upwardly, a concrete filling poured in said gap, wooden joists carried on the slabs and having beveled ends, nails driven into said joists and having their heads embedded in the slabs, wooden filling members having beveled edges in engagement with the beveled ends of the joists and nails driven in said filling members and having their heads embedded in the said concrete filling.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HENRY EUGÈNE MARTINET.

Witnesses:

LOUIS MOSES,

ALEXANDER MARION JESSUP.